

Model RS-580 Series

"CMT" Ceiling Mounted Tube Support

Installation and Operation Manual



Manual Part No. DC30-013 Revision A

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Revision History & Contents

REVISION HISTORY

| REVISION | DATE | TYPE OF MODIFICATION |
|----------|----------|----------------------|
| А | 12/15/00 | Initial Release. |

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NOTE: The following pages contain planning, installation, startup, operating, and maintenance instructions for Quantum Medical Imaging LLC's "CMT" Ceiling mounted Tube Support (Model RS-580). Where applicable, please disregard information pertinent to Siemens Table, Bucky, Generator or Multileaf collimator. For information pertaining to these components, refer to documentation provided with equivalent product manufactured by Quantum and/or other manufacturer.



3D TOP Ceiling Stand Planning Guide

SIEMENS

3D TOP Ceiling Stand

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| Planning Guida | |
| Planning Guide | |
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| | English |

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0 - 2 Revision

| Chapter | Page | Revision |
|---------|------|----------|
| all | all | 01 |
| all | all | 02 |

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General Remarks ♦

- With distribution of this revision level, all preceding planning guides, Speed Infos (PG's) and drafts lose their validity.
- All layouts issued by the Planning Departments must bear a note referring to the installation and delivery conditions of the Siemens Medical Engineering Group. The installation and delivery conditions must be submitted with the layouts.
- Unless otherwise specified, all dimensions are indicated in "mm".



- This symbol indicates a change (see revision status).

Orientation points

Points specific to system components which are referenced when positioning system components to each other or in the room.

The isocenter of a radiographic system is always designated as the orientation point.

- Fixpoints

Clearly marked points on system components, installation ceiling, walls or floor at which cable outlets are located.

Illustration in the drawings: circle with letter/number combination.

The cable lengths establish the maximum fixpoint distances and thus the maximum distances between the individual system components.

- Room height

The room height is the distance measured from the top surface of the floor to the bottom surface of the ceiling structural elements (Unistrut rails) (bottom surface of drop ceiling).

- Room lighting

According to DIN 68 68-57 (international standard being prepared), the lighting in rooms in which diagnosis is made on image playback devices (monitors) must meet the following requrements:

adjustable, no anti-glare screen, reproducible adjustment of lighting (e. g. dimmer with scale).

no glare or reflection from windows, lights and light boxes in the standard working position of the monitors.

Hotline + 49 (9191) 18 - 8080

Safety

- The provisions of the relevant fire safety regulations for the premises must be observed.
- The system has been developed according to EN60601 1.
- Minimum dimensions (e.g. room heights, safety distances) indicated in the planning guides are marked "min."
- Basic imperviousness to electromagnetic interference. Result of lightning discharges.
 - The protective targets of the various lightning protection areas up to the unit connection are also specified in the IEC 1024, DIN 48810, VDE 0675 and in the DEMVT recommendations.

2 -

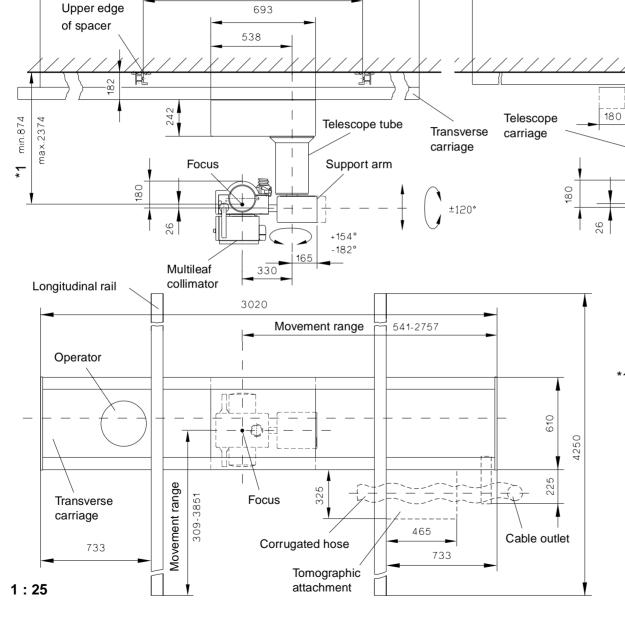
Dimensions of 3D TOP for MULTIX

Room

Planning



min.1130 max.2630



3020

1450

When configured with a telescope tube extension (option), the distance is increased by 200 mm

4250

610

⊕ | ⊕

486

260

325

Focus

Axis of

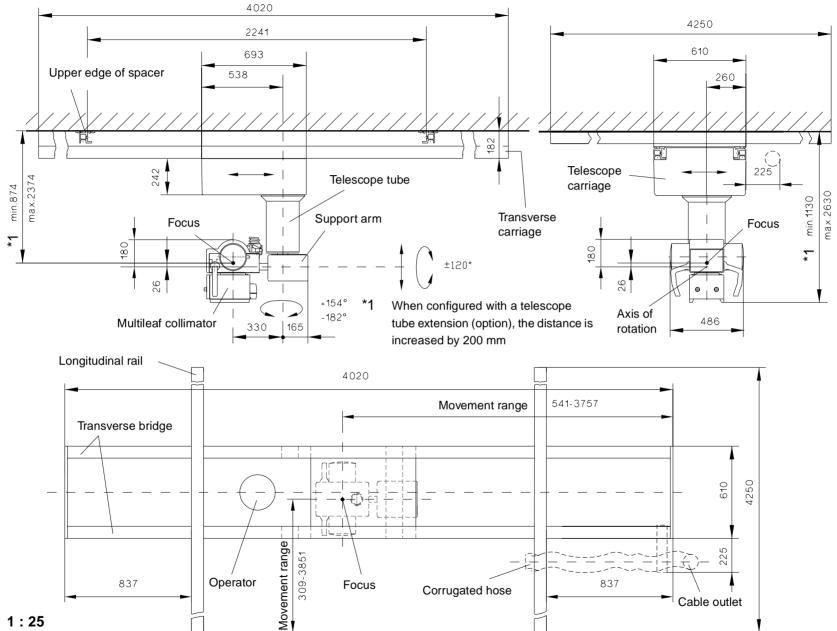
rotation

N N

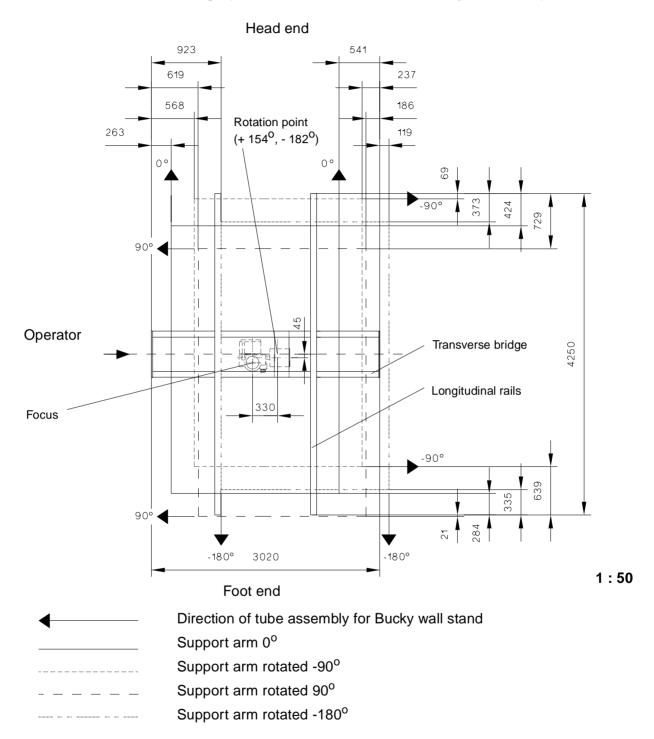
Room Planning

Dimensions of 3D TOP for MULTIX





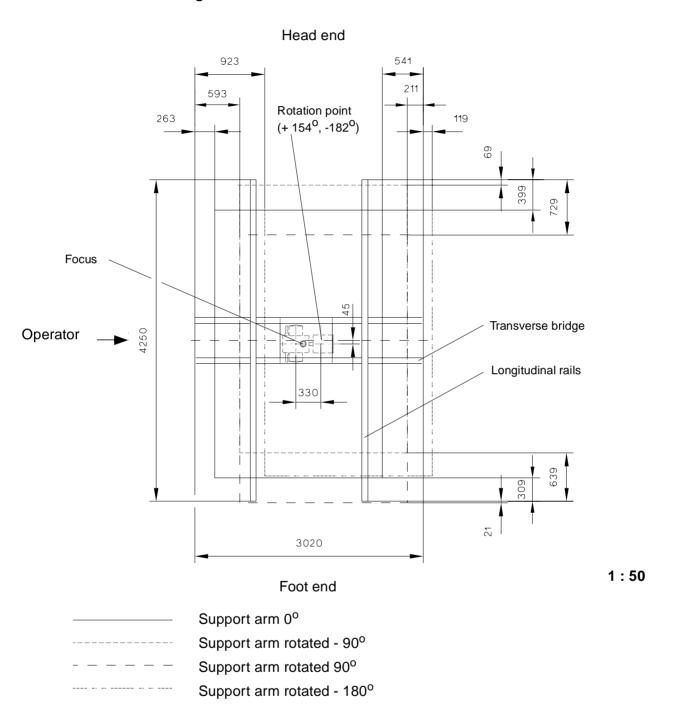
with the 3 m transverse carriage (beam directed towards the Bucky wall stand)



NOTICE

The tube assembly was rotated in $90^{\rm o}$ steps in the clockwise direction. Rotation of the tube assembly by $90^{\rm o}$ in the counterclockwise direction is also possible.

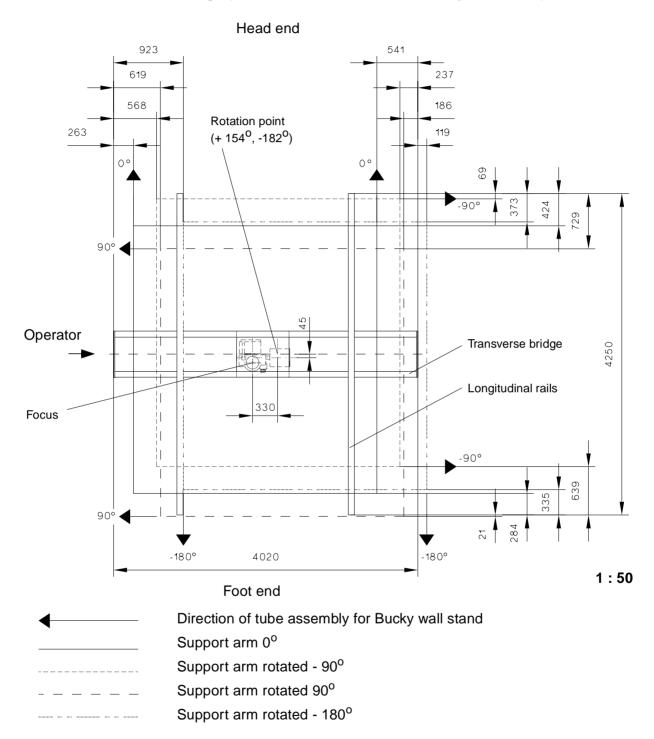
with 3 m transverse carriage



NOTICE

The tube assembly was rotated in 90° steps in the clockwise direction. Rotation of the tube assembly by 90° in the counterclockwise direction is also possible.

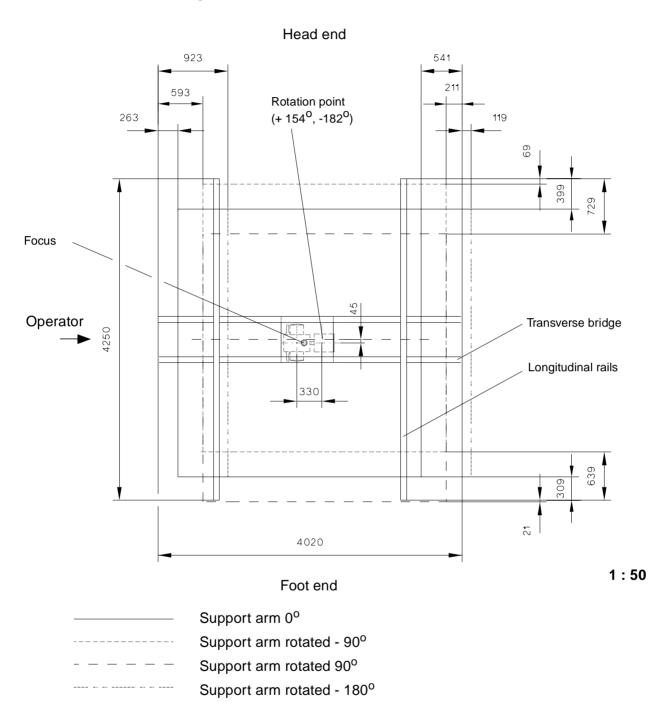
with the 4 m transverse carriage (beam directed towards the Bucky wall stand)



NOTICE

The tube assembly was rotated in $90^{\rm o}$ steps in the clockwise direction. Rotation of the tube assembly by $90^{\rm o}$ in the counterclockwise direction is also possible.

with 4 m transverse carriage

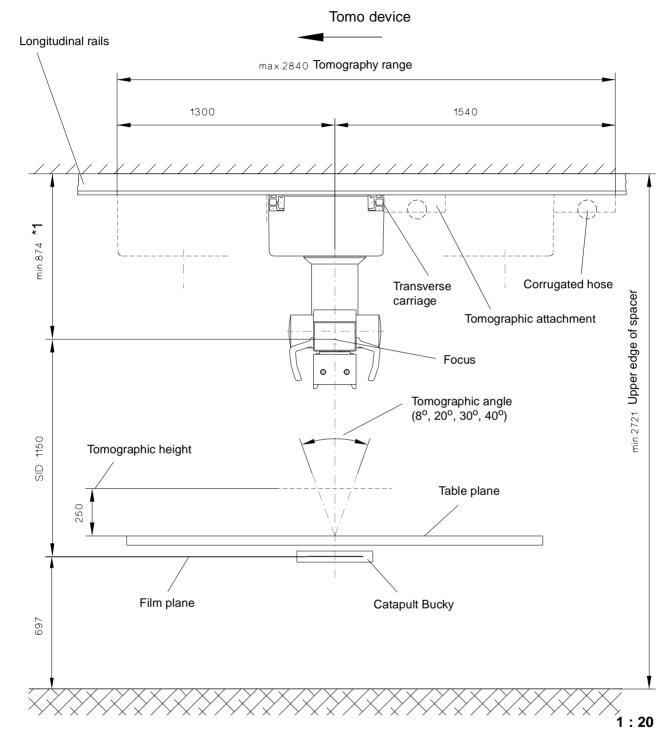


NOTICE

The tube assembly was rotated in 90° steps in the clockwise direction. Rotation of the tube assembly by 90° in the counterclockwise direction is also possible.

Dimensions of 3D TOP for MULTIX

with Tomo Device



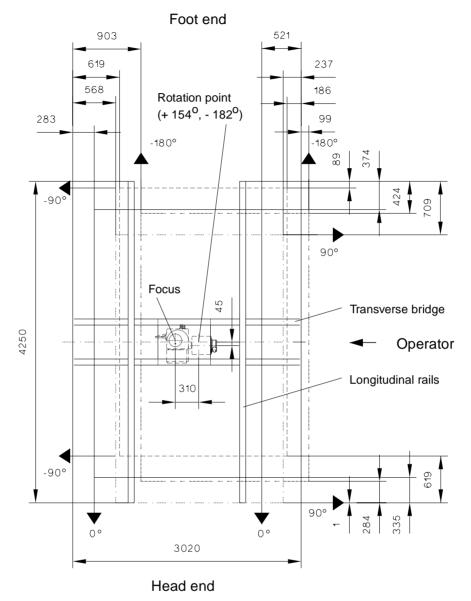
*1 When configured with a telescope tube extension (option), the distance is increased by 200 mm

NOTICE

The room height of min. 2721 mm (up to top edge of spacer) corresponds to an average tabletop height of 750 mm and an SID of 1150 mm (telescope tube, complete)

Useful range of 3D TOP for SIRESKOP SX

for Bucky wall stand



1:50

Direction of tube assembly for Bucky wall stand

Support arm 0°

Support arm rotated - 90°

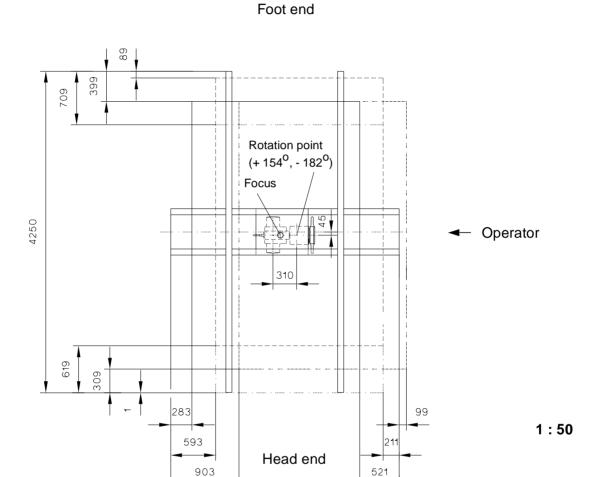
Support arm rotated 90°

Support arm rotated - 180°

NOTICE

The tube assembly was rotated in $90^{\rm o}$ steps in the clockwise direction. Rotation of the tube assembly by $90^{\rm o}$ in the counterclockwise direction is also possible.

Useful range of 3D TOP for SIRESKOP SX



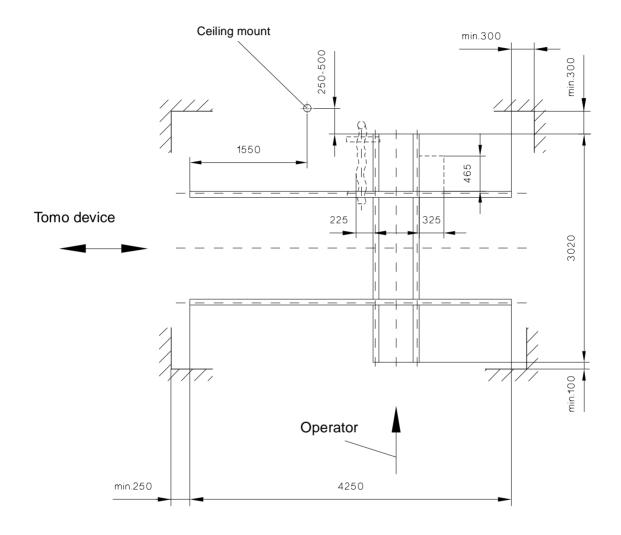
3020



NOTICE

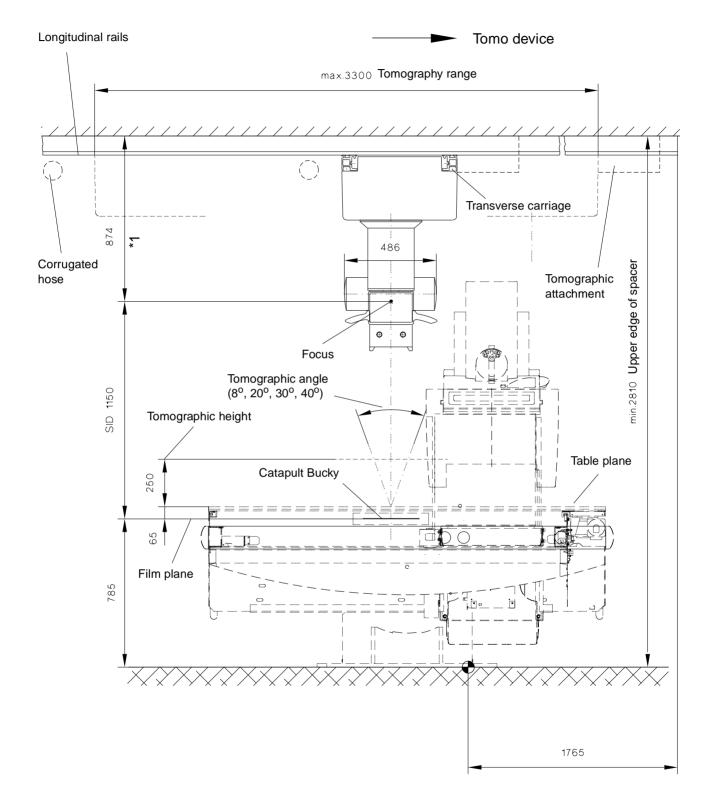
The tube assembly was rotated in $90^{\rm o}$ steps in the clockwise direction. Rotation of the tube assembly by $90^{\rm o}$ in the counterclockwise direction is also possible.

Room planning example of 3D TOP for SIRESKOP SX



1:50

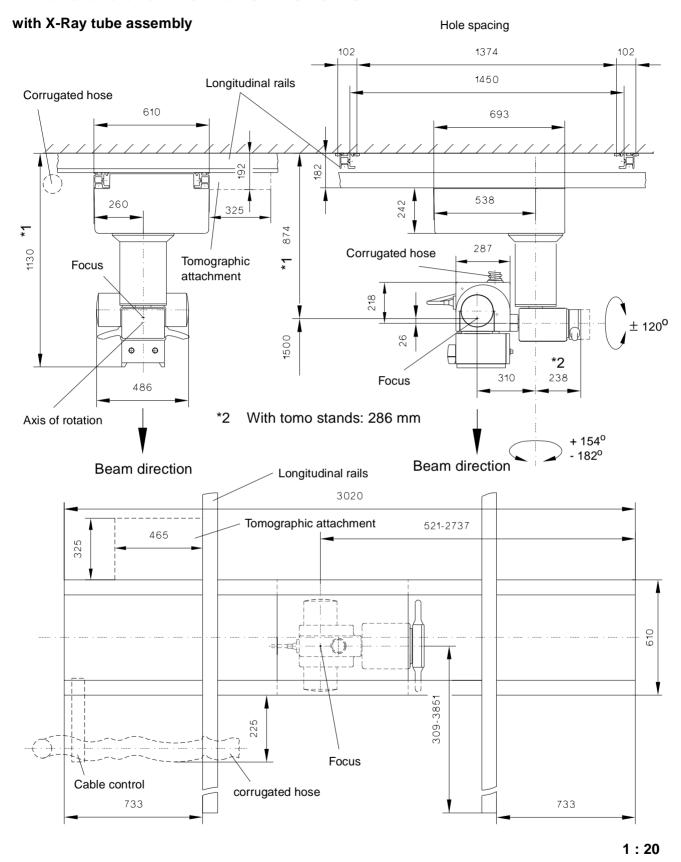
Dimensions of SIRESKOP SX, 3D TOP with Tomo Device



1:20

*1 When configured with a telescope tube extension (option), the distance is increased by 200 mm

Dimensions of 3D TOP for SIRESKOP SX



^{*1} When configured with a telescope tube extension (option), the distance is increased by 200 mm

Ceiling stand 3D TOP RX22-040.021.01 Page 12 of 12 Siemens AG Rev. 02 01.00 TD PS 3 Medical Engineering

Installation Notes

Requirements:

- On-site substructure of Wieland, Schwerter, Unistrut or similar support rails.
- Installation device, Part No. 87 63 872 G2122
- Since the longitudinal rails are part of the preinstallation, they must be ordered in advance (service contractor).

Fastening:

- The standard length of the longitudinal rails is 4250 mm.
- Longitudinal rail extension is possible.
- At least 4 mounting points for each standard longitudinal rail are required.
- Mounting materials for 7 mounting points per rail are included in the shipment.
- Stop spacing (mounting spacing) can be between 675 1350 mm.

Shortening of the Transverse Bridge: ♦

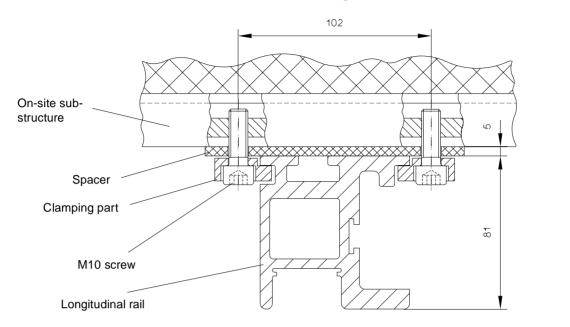
The transverse bridges for the 3D TOP ceiling stands can be shortened as follows:

| Versions for Mu | Itix TOP: | Versions for Sireskop SX | (: |
|---|-----------------|---|-----------------|
| 3 m transverse bridg | e without tomo: | 3 m transverse bridge w | rithout tomo: |
| User side: | 700 mm | User side: | 700 mm |
| Wall inlet side: | 650 mm | Wall inlet side: | 650 mm |
| 4 m transverse bridg | e without tomo: | 2. 2.62 m transverse bridg | e without tomo: |
| User side: | 800 mm | User side: | 320 mm |
| Wall inlet side | 750 mm | Wall inlet side: | 650 mm |
| 3 m transverse bridg | e with tomo: | 3 m transverse bridge w | vith tomo: |
| User side: | 700 mm | User side: | 700 mm |
| Wall inlet side: | 100 mm | Wall inlet side: | 250 mm |
| 4 m transverse bridg | e with tomo: | 2.62 m transverse bridg | e with tomo: |
| User side: | 800 mm | User side: | 320 mm |
| Wall inlet side: | 200 mm | Wall inlet side: | 250 mm |

The dimensions represent the maximum amount that can be shortened on one side and are relative to the particular rail end. If needed, the length of the corrugated hose must be adapted.

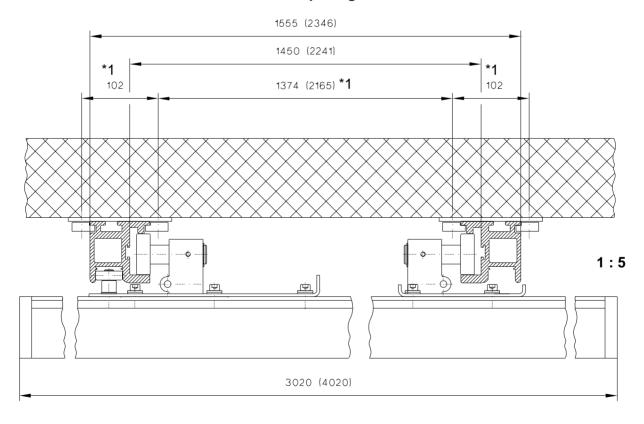
Ceiling installation for 3D TOP

Detailed view of the longitudinal rail



1:2

Hole spacing



The spacing for the 4 m transverse bridge is added in parentheses

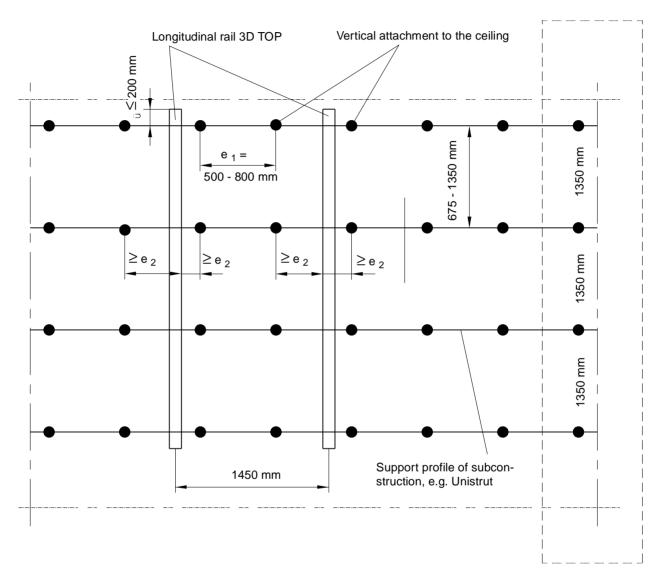
*1 Hole spacing

Requirements for installation of the 3D TOP ceiling stand without structural calculation of the ceiling subconstruction

When there is 500 - 800 mm spacing of the mounting points for the subconstruction (e.g. Unistrut rails), each rail must be able to support a load of at least 7.0 kN.

Each Unistrut mounting point must be able to support a load of at least 5.0 kN.

The longitudinal rails must be positioned as shown in the following sketch.



The longitudinal rails may not be mounted directly below the Unistrut mounting points. Example with 4 mounting points per rail, with a stop spacing of 1350 mm and a rail spacing of 100 mm.

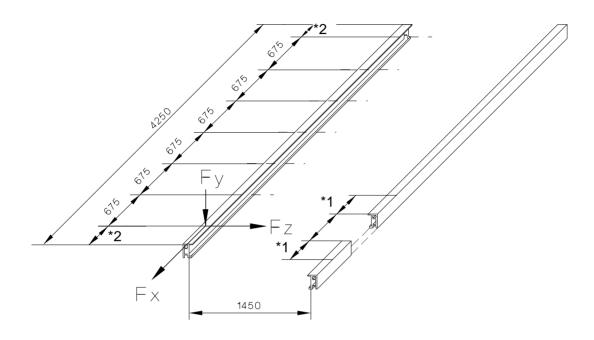
| e ₁ | [mm] | 800 | 700 | 600 | 500 | |
|----------------|------|-----|-----|-----|-----|--|
| e ₂ | [mm] | 220 | 190 | 160 | 140 | |

The load distribution through the rest of the building is not taken into consideration here.

e₂ = distance from longitudinal rail to next mounting point for Unistrut rail

ü = Rail overhang

Ceiling installation for 3D TOP



Holding loads per mounting point (kN)

direction.

| With rail overhang (*2) | max. 200 mm |
|-------------------------|-------------|
| Fy | 7.0 |
| Fz | 2.7 |
| Fx | 2.1 |

CAUTION

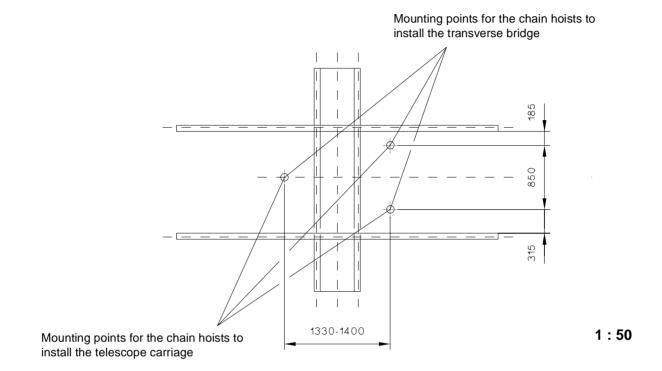
The fastener materials for 7 mounting points per rail are included in the shipment. Hole spacings (grid) between 675 and 1350 mm are possible, with a rail overhang (*2) of 80 to 400 mm. At least 4 mounting points are required for each standard longitudinal rail.

NOTICE

The indicated forces include: the static load forces as well as the dynamic load forces for a movement speed of up to 0.6 m/s in the Fy

*1 With rail overhang, observe 150 mm minimum overhang for the rail extension adapter. The extension must not project into main working area.

Ceiling mounting points



NOTICE

An appropriate substructure (preferably Unistrut rails) must be installed. The chain hoists and eye bolts must be used for the particular subconstruction.

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Notes on cable run

Suggested cable run

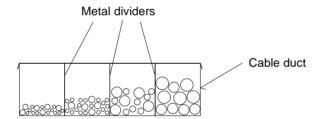
Cable duct depth 60 mm if required, deeper at cable crossovers.

Run high voltage and power cables separately from control and video cables (use shielding if possible).

Make asbolutely sure to:

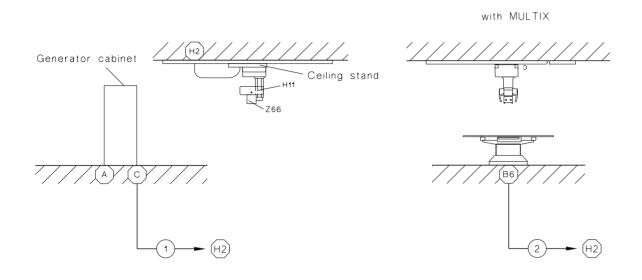
Avoid cable looping and, as far as possible, crossovers.

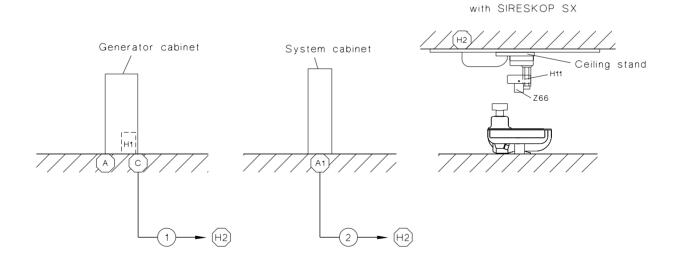
- Run cables in separate conduits or closed cable ducts.
- If open cable ducts are used, run the cables separately using metal dividers or similar devices.



Layout of fixpoints

Ceiling stand 3D TOP ♦





NOTICE

To ground the longitudinal rails (head- and foot ends) for the 3D TOP ceiling stand, a 6 mm² ground conductor must be provided on-site.

List of fixed points, Ceiling Stand 3D TOP with Multix ♦

| Cable har- ness No. | from fixed point | to fixed point | Cable duct cross- section in mm ² | Conduit, diameter inside in inches | Minimum opening in mm | Maximum fixed point distance in m | Remark |
|------------------------------|------------------------|----------------------|---|---|-----------------------------|-----------------------------------|--------------------|
| 1 | С | H2 | 2205 | 3 | 42 | 12 | High voltage cable |
| 2 | B6 | H2 | 1531 | 2 | 35 | 10 | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |
| 7 | | | | | | | |

List of fixed points, Ceiling Stand 3D TOP with SIRESKOP SX ♦

| Cable har-ness | from fixed point | to fixed point | Cable duct cross- section in mm ² | Conduit, diameter inside in inches | Minimum opening in mm | Maximum fixed point distance in m | Remark |
|----------------|------------------------|----------------------|---|---|-----------------------------|-----------------------------------|--------------------|
| 1 | С | H2 | | | | 8 | Distributor system |
| 2 | A1 | H2 | | | | 8 | Distributor system |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 5 | | | | | | | |
| 7 | | | | | | | |

List of the fixed points used ♦

| Fixed points | Subsystem | Remark |
|--------------|-------------------|--------------------|
| A/C | Generator cabinet | Floor fixed points |
| В6 | MULTIX - Table | Floor fixed points |
| H2 | Ceiling Stand | Floor fixed points |

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Technical Data 5 - 1

Electrical data

| Ceiling stand 3D TOP | Power supply |
|----------------------|------------------------|
| | from particular system |

Weights and heat dissipation

| | Weight [kg] | Heat dissipation [W] |
|---|--------------------------------|----------------------|
| Central electronics | | approx. 300 |
| Ceiling stand 3D TOP (without tomographic device) with 3 m transverse bridge with 4 m transverse bridge | approx. 347 ♦ approx. 361 ♦ | max. 100 |
| 2 longitudinal rails (4.25 m) | each approx. 26.5 | |
| Transverse track (3 m) | approx. 56 | _ |
| Transverse track (4 m) | approx. 70 | |
| Telescope carriage complete | approx. 238 | |
| Tomographic device | approx. 27 | |

Environmental conditions

| | Operation | Transport | Storage |
|-----------------------------------|------------------|------------------|------------------|
| permissible ambient temperature | 10° 40° C | - 20° 70° C | - 20° 70° C |
| permissible relative air humidity | 20 % 75 % | 10 % 95 % 🔷 | 10 % 95 % 🔷 |
| permissible air pressure | 700 hPa 1060 hPa | 500 hPa 1060 hPa | 500 hPa 1060 hPa |

Packaging and transport routes

| largest crate | L 1484 x W 1024 x H 1526 mm |
|---|--|
| heaviest single part | approx. 410 kg |
| minimum door width and corridor width for transport | min. 820 mm door width approx. 940 mm corridor width |

Surface colors

| Primary color | white textured enamel, Med. surface No. 4146 similar RAL gray - white 9002 |
|-------------------|--|
| Combination color | medical blue, Med. surface No. 4511 |

Siemens AG Medical Engineering RX22-040.021.01 Rev. 02 01.00 Page 1 of 2 TD PS 3 Ceiling stand 3D TOP

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| Chapter | Page | Change |
|---------|-------|---|
| 1 | 1-1 | General notes updated |
| 3 | 3-1 | Text added |
| 4 | 4-2 | List of fixed points updated |
| 4 | 4-3 | List of fixed points new |
| 5 | 5-1 | Weight changed; Ambient conditions updated |
| 7 | 7-1/2 | Old chapter 7 deleted; 7 deleted "Changes to Previous Version" updated |

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3D-TOP Overhead Support Installation Instructions

SIEMENS

3D-TOP Overhead Support

Installation Instructions Overhead Support 3D-TOP Manual Also for: **ICONOS R200 MULTIX TOP** © Siemens AG1997

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English

Doc. Gen. Date: 05.00

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General Information

This document was originally written in German.

Safety Notes

While carrying out all work steps and checks the general safety notes contained in the system manual must be observed.

Tolerances

General tolerances for dimensions per ISO 2768

| Limit dimensions for nom.dimens. range | over 3 mm to 6 mm | over 6 mm to 30 mm | over 30 mm to 120 mm | over 120 mm to 400 mm | over 400 mm to 1000 mm | over 1000 mm to 2000 mm | over 2000 mm to 4000 mm |
|--|----------------------|--------------------------|----------------------------|--------------------------------|---------------------------------|----------------------------------|----------------------------------|
| Admissible tolerance | ± 0.5 mm | ± 1 mm | ± 1.5 mm | ± 2.5 mm | ± 4 mm | ± 6 mm | ± 8 mm |

These tolerances apply to all dimensions indicated in the present instructions, if no other tolerance is stated expressly behind the value.

A tolerance of \pm 10 % is permissible for torque values.

Product-specific Notes

Required Documentation

Installation Protocol MULTIX PRO/TOP

RXB1-140.039.01...

Required Measuring Instruments, Tools and Aidsl

NOTICE

All tools, measuring instruments and aids are listed and specified in the Service Tools Catalogue, with the exception of the "standard installation tools".

- Standard installation tools
- Hand drill

| • | Torque wrench, 20-100 Nm | 44 30 906 RH090 |
|---|-----------------------------|-----------------|
| • | Allen wrench set | 44 16 814 RH090 |
| • | ESD equipment, type 8501-3M | 97 02 606 Y3121 |
| • | Installation device | 87 63 872 G2122 |
| • | Spring balance | 44 29 122 RH090 |

Colors Used

White Textured enamel 4146

Spray cans 84 27 734 RE999 Paint stick 34 44 403 RE999

Cleaning

Before the unit is cleaned, it must in any event be switched off or separated from the power supply.

Clean the unit only with water or with a hand-warm, diluted aqueous solution, consisting of water and a household detergent.

Do not use any abrasive cleaning agents or no organic solvents or cleaning agents, such as washing benzine, alcohol, spot water, etc.

For further information refer to the "Cleaning/Disinfection" operating instructions.

Abbreviations Used

ISK = Allen screw

Installing the Longitudinal Rails

Preparations

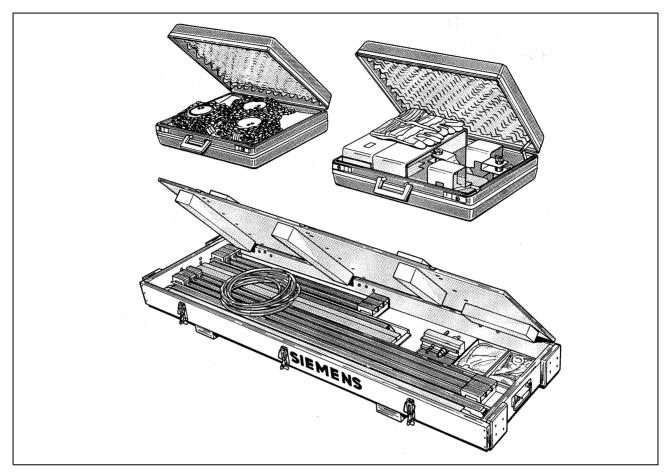


Fig. 1

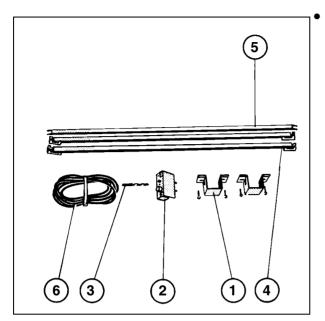


Fig. 2

Take the parts (see Fig. 2 Page: 6) out of the transport crate of the installation device (see Fig. 1 Page: 5). The list of contents with materials packing list can be found in one of the crates.

Pos:1 2 rail holders with M10x40 Allen screws

Pos.:2 Drilling template

Pos.:3 Twist drill bit, 12 mm Ø

Pos.:4 3 spacer gauges

Pos.:5 1 gauge

Pos.:6 1 tubing water level

Extending the Longitudinal Rails (Option)

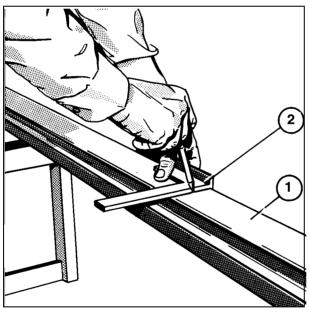
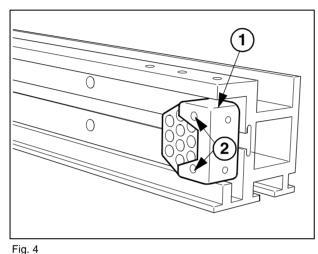


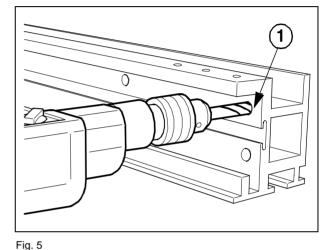
Fig. 3

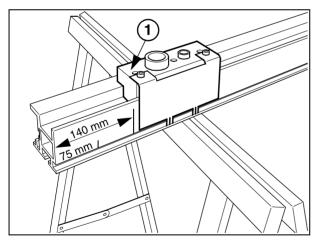
If needed, the longitudinal rails can be cut using a power saw or a hand saw and afterwards, butt the two original ends up against one another, i.e., the cut ends should comprise the ends of the rails.

NOTICE

If the longitudinal rails (see 1/Fig. 3 Page: 6) are cut by hand, use a carpenter's square (see 2/Fig. 3 Page: 6) to make a right-angle line on the rail. Cut approx. 2 to 3 mm into all sides of the rail with the hand saw so that the saw will have a guide when sawing completely through the rail. Deburr the cut edges of the rail.







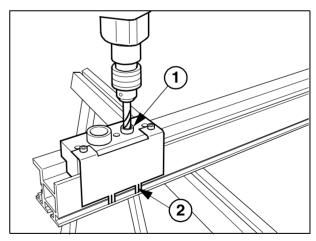
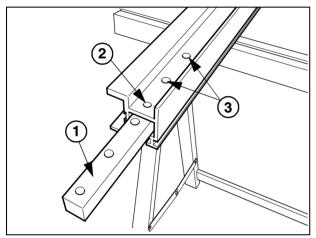


Fig. 6 Fig. 7

- Insert an end stop (see 1/Fig. 4 Page: 7) into each of the cut off ends of the longitudinal rails and secure them in place so they are flush with the ends.
- Use the Allen-head set screws (see 2/Fig. 4 Page: 7) to mark the position of the drill holes needed; to do this, tighten the set screws to leave a score mark.
- Drill the positions marked (see 1/Fig. 5 Page: 7) with a 7 mm drill bit approx. 5 mm deep.

- Position the original end of the rail on a stabile base (see Fig. 6 Page: 7), and when doing this, be careful of the position of the profile!
- Mark the dimensions 75 mm and 140 mm on the outside surface of the rail (see Fig. 6 Page: 7).
- Slide the drilling template (see 1/Fig. 6 Page: 7) into the slot in the rail. (The drilling template is part of the installation kit).
- Slide the 12 mm drill guide on the drilling template (see 1/Fig. 7 Page: 7) with the help of the marking aid (see 2/Fig. 7 Page: 7) over the position that was marked (140 mm) and use the 3 Allen screws to tighten down the drilling template on the rail.
- Drill through the first wall of the rail profile using the 12 mm drill bit.
- After loosening the 3 Allen screws, slide the drilling template over to the second mark (75 mm), and as described above, tighten the template down on the rail.



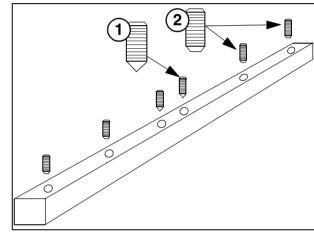


Fig. 8

Fig. 9

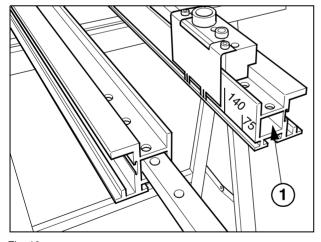


Fig. 10

- Drill the second hole as described above.
- Clean the rail of any drill shavings.
- Insert the linking piece (see 1/Fig. 8 Page: 8) into the longitudinal rail profile as shown in (see Fig. 8 Page: 8) until the tip of the Allen-head set screw (see 1/Fig. 9 Page: 8) is positioned over the first hole (see 2/Fig. 8 Page: 8).

- In this position, tighten the set screw.
 - The linking piece will be pressed up.
- Tighten the two other Allen-head set screws (without pointed ends), (see 2/Fig. 9 Page: 8) through the two 12 mm drill holes (see 3/Fig. 8 Page: 8).
- Position the original end of the second longitudinal rail (see 1/Fig. 10 Page: 8) as shown in (see Fig. 10 Page: 8); when doing so, pay attention to the position of the rail profile!
- Mark the dimensions 75 mm and 140 mm on the rail, similar to what was done with the first rail.
- Drill the holes in the same way as with the first rail.

NOTICE

Install the rails on the ceiling in accordance with the following paragraph. Mounting the rails to the ceiling is done in a similar manner as the mounting of the linking piece.

Installing the Longitudinal Rails on the ceiling

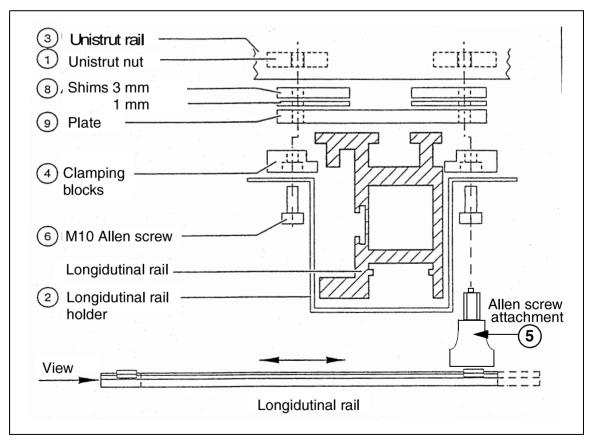


Fig. 11

NOTICE

Installation of the mounting elements is shown in (see Fig. 11 Page: 9).

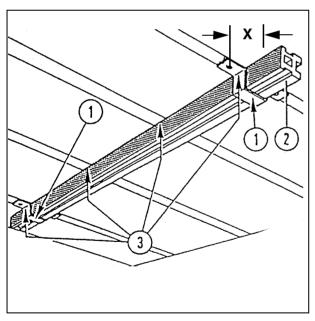
Installing the Rear (Wall-side) Longitudinal Rail

- Take the longitudinal rails out of the wooden crate.
- Determine the outside mounting points of the rear longitudinal rail per the Project Plan (room plan).
- Insert the Unistrut nuts (see 1/Fig. 11 Page: 9) to install the longitudinal rail holders (see 2/Fig. 11 Page: 9) in the Unistrut rails (see 3/Fig. 11 Page: 9).

NOTICE

These Unistrut nuts are not included in the shipment, they must be obtained from the customer's contractor. They must be hardness rating 8.8.

The M10x35 Allen screws in hardness rating 8.8 (included in shipment) must be turned at least 10 mm into the Unistrut nuts (if needed, use longer Allen screws with hardness rating 8.8).



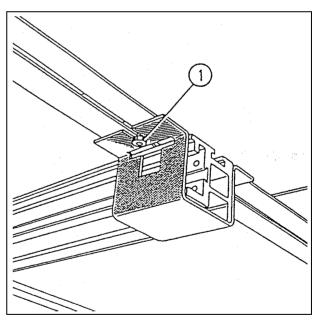


Fig. 12

Fig. 13

• Loosely install the two longitudinal rail holders (see 1/Fig. 12 Page: 10) at the outside ends of the rail using two M10x40 Allen screws (see 1/Fig. 13 Page: 10) for each.

• Insert the rear longitudinal rail (see 2/Fig. 12 Page: 10) in the longitudinal rail holders (see 1/Fig. 12 Page: 10).

NOTICE

The overhang X must be the same length on both sides of the rail!

- Straighten the longitudinal rail per the room plan. Hand-tighten the Allen screws (see 1/Fig. 13 Page: 10).
- Insert additional Unistrut nuts into the Unistrut rail according to the number of intended mounting points (see 3/Fig. 12 Page: 10).

NOTICE

At least four mounting points are required for each rail. Materials for a max. of 7 mounting points are supplied for each rail!

- Insert the plate (see 9/Fig. 11 Page: 9).
- Install the clamping block (see 4/Fig. 11 Page: 9) with a M10x35 screw. To do this, an Allen wrench attachment (see 5/Fig. 11 Page: 9) must be used.

Installing the Front (Physician's Side) Longitudinal Rail

- Determine the required distance between the longitudinal rails.
- Remove the two longitudinal rail holders from the rear longitudinal rail and install them
 for the front longitudinal rail. Installation of the front longitudinal rail is done in the same
 manner as for the rear longitudinal rail.

Adjusting the Spacing of the Rails

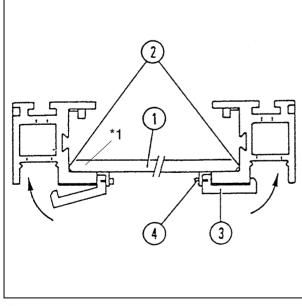


Fig. 14

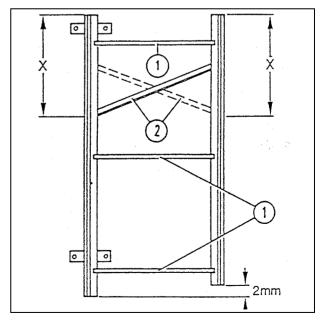


Fig. 15

- *1 With the 4 m transverse carriage, the spacer gauges cannot be used (these were designed only for the 3 m transverse carriage). The space dimensions specified in the Project Plan must be maintained.
- Take the 3 spacer gauges (see 1/Fig. 14 Page: 11) (see 1/Fig. 15 Page: 11) out of the installation kit and loosely install them as shown in (see Fig. 14 Page: 11).
- Clamp the spacer gauges to the rear longitudinal rail; when doing this, the end piece (see 2/Fig. 14 Page: 11) must be up against the rail. For this, lift up the plate (see 3/Fig. 14 Page: 11) and hand-tighten the screw (see 4/Fig. 14 Page: 11).
- Position the front longitudinal rail until it is also up against the end piece (see 2/Fig. 14 Page: 11).

Aligning the Front Ends of the Longitudinal Rails

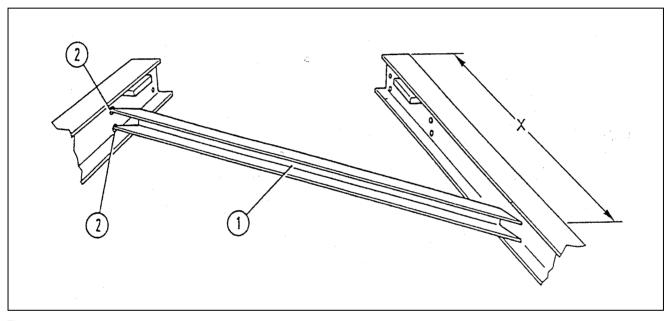


Fig. 16

- Place the measuring gauge (see 1/Fig. 16 Page: 12) into the two holes (see 2/Fig. 16 Page: 12) in the front longitudinal rail and place it diagonally to the rear longitudinal rail (see Fig. 16 Page: 12). Use a pencil to mark the position of (see X/Fig. 16 Page: 12).
- In the same manner (see 2, broken line/Fig. 15 Page: 11) place the measuring gauge crossed over into the holes in the rear longitudinal rail and at the mark X on the front rail.
- The two X dimensions (see Fig. 15 Page: 11) must be equal (tolerance: 2 mm). If needed, reposition the front longitudinal rail accordingly.
- Secure the clamping blocks (see 4/Fig. 11 Page: 9) at the ends of the rails by tightening the mounting screws (see 6/Fig. 11 Page: 9).
- Remove the longitudinal rail holders (see 2/Fig. 11 Page: 9).

Leveling the Two Longitudinal Rails

Use the tubing water level to determine the lowest point on the longitudinal rails

- The end mounting points of the rails must be leveled to this point and the difference in height must be evened out by inserting the supplied shims (1 mm/3 mm), (see 8/Fig. 11 Page: 9).
- Recheck the level of the longitudinal rails with the tubing water level. The difference in height over a rail length of 4 m may be 2 mm.



- Insert shims under the remaining mounting points.
- Tighten all mounting screws to a torque of 50 Nm.
- Remove the spacer gauges (see 1/Fig. 14 Page: 11).

NOTICE

If the longitudinal rails were preinstalled (advanced shipment) continue here with further installation.

Assembling the Rubber Bumper Stops

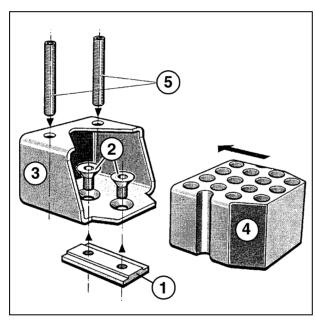
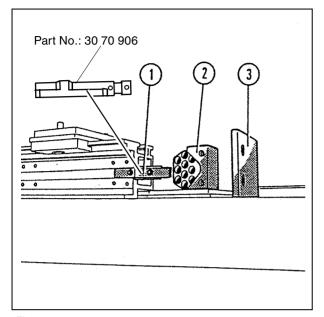


Fig. 17

- Loosely install the tab (see 1/Fig. 17 Page: 13) to the housing (see 3/Fig. 17 Page: 13) with two M6x8 Allen screws (see 2/Fig. 17 Page: 13).
- Insert the rubber bumper (see 4/Fig. 17 Page: 13) into the housing and turn in the two Allen-head set screws (see 5/Fig. 17 Page: 13) until they are flush with the housing.

Installing the Middle Position Stop, SID Stops, Rubber Bumper Stops and

Cover Panels



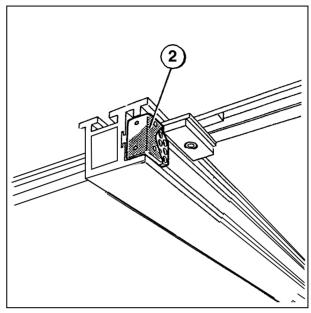


Fig. 18

Fig. 19

- Insert the middle position stop (see 1/Fig. 18 Page: 14) into the front of the longitudinal rail.
- If a Bucky wall stand is positioned in the table longitudinal axis, additional SID stops must be inserted.

NOTICE

If the Bucky wall stand is positioned in the table transverse axis, after installation of the transverse bridge is completed, the SID stops must be inserted into the head-end of the transverse bridge rail (side on which the brake assembly is located) in a similar manner (see Fig. 18 Page: 14). For this, a cover the front end of the transverse bridge must be removed.

- Insert the rubber bumper stops (see 2/Fig. 18 Page: 14) (see 2/Fig. 19 Page: 14) into the rails at the four ends of the rails and secure them in place by turning the two Allen-head set screws (see 5/Fig. 17 Page: 13) into the holes provided.
- Attach the 4 plastic covers (see 3/Fig. 18 Page: 14) to the rubber bumper housing (see 2/Fig. 18 Page: 14) using two M6x10 countersunk Allen-head screws for each.
- Tighten the Allen screws (see 2/Fig. 17 Page: 13).
- Tighten the Allen-head set screws (see 5/Fig. 17 Page: 13).

Ground Wire Connection for the Longitudinal Rails

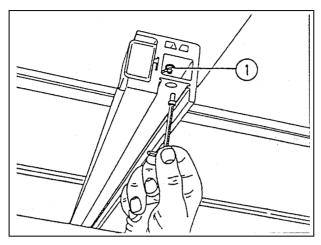


Fig. 20

• Attach the ground wire (see 1/Fig. 20 Page: 15) at the ends of each of the longitudinal rails.

NOTICE

Remove the protective foil on the longitudinal rails only after the telescope has been installed.

Installing the Transvers Bridge

Shortening the Transverse Bridge

If necessary, the transverse carriages of the 3D TOP ceiling stand can be shortened as follows, see also the Project Plan.

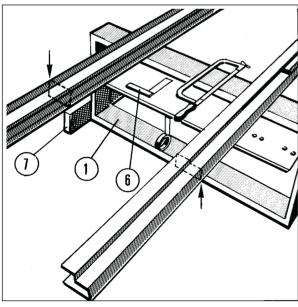
CAUTION

The transverse bridge may be shortened to max., see table.

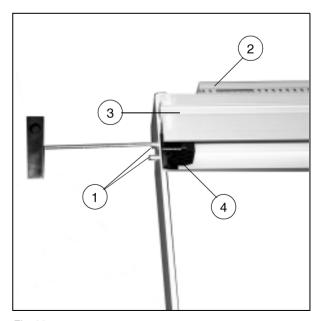
□ The dimensions represent the maximum amount that can be shortened at one end and refer to the particular rail end. if necessary, the length of the corrugated hose can be adapted.

Versions for the MULTIX TOP:

| 3 m transverse carriage without tomo: Operator's side: Wall side: | 700 mm 650 mm | 30 73 009 G6019 |
|---|------------------|-----------------|
| 4 m transverse carriage without tomo: Operator's side: Wall side: | 800 mm 750 mm | 30 73 249 G6019 |
| 3 m transverse carriage with tomo: Operator's side: Wall side: | 700 mm 100 mm | 30 73 249 G6019 |
| 4 m transverse carriage with tomo Operator's side: Wall side: | 800 mm 200 mm | 30 73 017 G6019 |







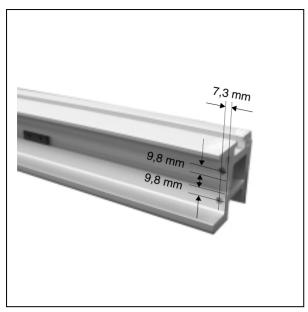


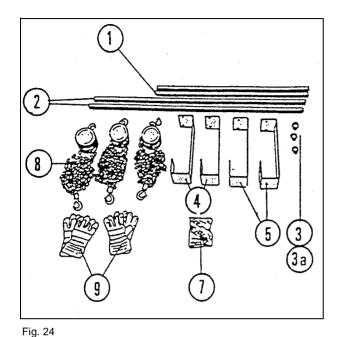
Fig. 23

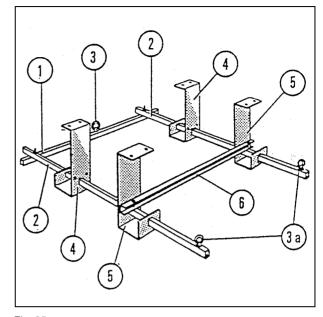
- Use 2 installation supports, or take the two wooden installation frames (see 1/Fig. 21 Page: 16) from the packing for the transverse bridge and secure a wooden strut (see 2/Fig. 21 Page: 16) on the front with nails to stabilize the installation frames (see 1/Fig. 21 Page: 16).
- Place the transverse bridge down on the installation support or on the wooden installation frames.
- Remove the wall-side or operator's side cover panel (see 1/Fig. 22 Page: 16).
- Remove the rubber bumpers (see 4/Fig. 22 Page: 16) and cover panel.

Only with tomo stands, shorten the cable channel as follows:

- Remove the mounting screws for the cable channel.
- Shorten the cable channel accordingly.
- Reinstall the cable channel; if needed, drill new 3.7 mm diameter mounting holes and install the cable channel with self-tapping M4 x 12 mm-Z screws.
- Shorten the transverse bridge (see 3/Fig. 22 Page: 16) per the table. For this, mark the saw-cut location with a square all around (see arrows/Fig. 21 Page: 16).
- Make an initial cut approx. 3 mm using a hand saw on all four surfaces so that the saw will later have a guide when making the cut through.
- Deburr the cut surfaces.
- Transfer the holes for the rubber bumpers from the cut end (see Fig. 23 Page: 17) and drill the two 7.0 mm dia. holes approx. 7-8 mm deep.
- Reinstall the rubber bumpers and cover panel.
- Shorten the operator's side in the same manner.

Installing the Lifting Device





g. = .

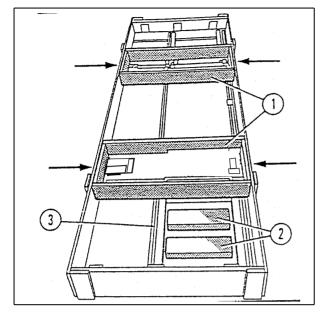
Fig. 25

NOTICE

In (see Fig. 24 Page: 18) shows the mounting materials for the lifting device.

- Assemble the squared 1045 mm rails (see 1/Fig. 24 Page: 18)
 (see 1/Fig. 25 Page: 18) and the two squared 1450 mm rails (see 2/Fig. 24 Page: 18)
 (see 2/Fig. 25 Page: 18) using two M10x100 Allen screws, washers, nuts (in accessory pack) (see 7/Fig. 24 Page: 18) together. Position the rails so that the two passage holes are located at (see 5/Fig. 25 Page: 18).
- Install the eye bolt (see 3/Fig. 24 Page: 18) (see 3/Fig. 25 Page: 18) on the rail using one M10x50 Allen screw (see 1/Fig. 25 Page: 18).
- Place the four supports (see 4, 5/Fig. 24 Page: 18) (see 4, 5/Fig. 25 Page: 18) as shown in (see Fig. 25 Page: 18) over the two rails (see 2/Fig. 25 Page: 18).
- Attach the U-rail (see 2/Fig. 25 Page: 18) using one M8x80 Allen screw, contact washer, washer and nut on each rail (see 6/Fig. 25 Page: 18).
- Install the two front supports (see 5/Fig. 25 Page: 18) using two M8x20 Allen screws, contact washers, washers and nuts for each to the U-rail (see 6/Fig. 25 Page: 18). The two rear supports (see 4/Fig. 25 Page: 18) do not get installed.
- Attach the two eye bolts (see 3a/Fig. 24 Page: 18) (see 3a/Fig. 25 Page: 18) to the rails (see 2/Fig. 25 Page: 18) using one M10x50 Allen screw for each.

Unpacking the Transverse Bridge



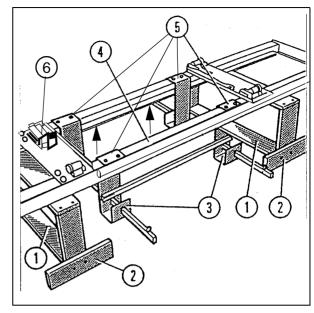
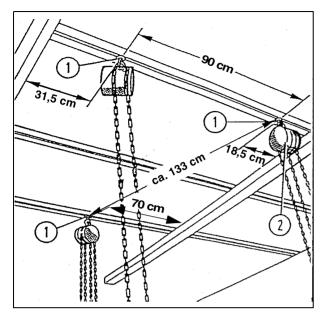


Fig. 26

Fig. 27

- Remove the lid on the crate.
- Pull the nails (see arrow/Fig. 26 Page: 19) out of the installation frame from the outside.
- Take out the two small wooden frames (see 1/Fig. 26 Page: 19), at the front, remove the two boards (see 2/Fig. 26 Page: 19) and attach them to the two small wooden frames (see 1/Fig. 26 Page: 19) with nails (see 2/Fig. 27 Page: 19).
- Place the two wooden frames (see 1/Fig. 27 Page: 19) at the installation location under the longitudinal rails (see Fig. 27 Page: 19).
- With two persons, place the transverse bridge down (see 4/Fig. 27 Page: 19) on the wooden frames (see 1/Fig. 27 Page: 19) so that the brake assembly (see 6/Fig. 27 Page: 19) is positioned at the front (operator's side) of the unit.
- Place the lifting device (see 3/Fig. 27 Page: 19) from below on the transverse bridge (see 4/Fig. 27 Page: 19) and attach it using eight M8x20 Allen screws, washers at (see 5/Fig. 27 Page: 19). The Unistrut nuts are located in the rail profiles in the transverse bridge.



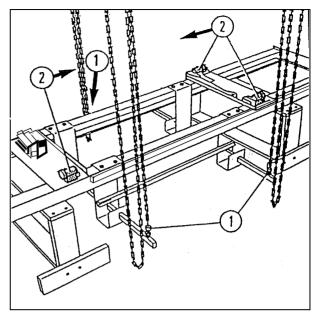


Fig. 28 Fig. 29

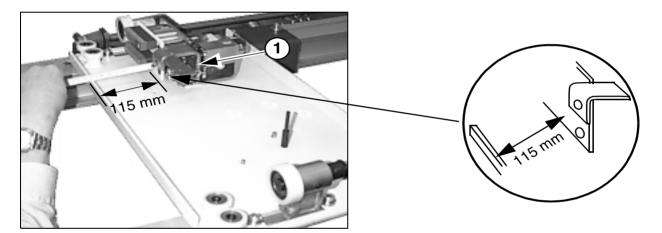
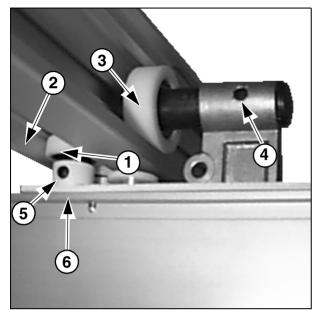


Fig. 30

- Place 1 Unistrut nut each at the 3 mounting points for the chain hoists per the dimensions given in(see Fig. 28 Page: 20), then turn in the eye bolts (see 1/Fig. 28 Page: 20) and tighten them.
- Hook on the 3 chain hoists (see 8/Fig. 24 Page: 18) into the eye bolts (see 1/Fig. 28 Page: 20).
- Place the hooks for the chain hoists into the eye bolts on the lifting device (see 1/Fig. 29 Page: 20).
- The four roller bearings (see 2/Fig. 29 Page: 20) must be pushed in (direction of arrow).
- Set the brake assembly back (see 1/Fig. 30 Page: 20) to a distance of 115 mm as shown in (see Fig. 30 Page: 20) and secure it in place.

Installing the Transverse Bridge in the Longitudinal Rails



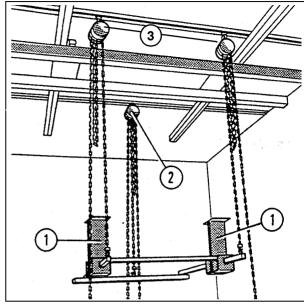


Fig. 31

Fig. 32

• With two persons, evenly raise the transverse bridge; when doing this, use the supplied gloves.

NOTICE

When raising the transverse bridge, make sure that the brake assembly does not get damaged!

Raise the transverse bridge so that the lateral guide bearings (see 1/Fig. 31 Page: 21) can be inserted into the longitudinal rail profile (see 2/Fig. 31 Page: 21) and the 4 roller bearings (see 3/Fig. 31 Page: 21) can be in-serted into the rail profiles.
 In this position, tighten the set screws (see 4/Fig. 31 Page: 21) to a torque of 25 Nm.



Removing the Lifting Device

- Remove the eight M8x20 Allen screws from the lifting device (see 5/Fig. 27 Page: 19), move the parts (see 1/Fig. 32 Page: 21) to the middle so that the lifting device can be lowered.
- Lower the lifting device and unhook the chain hoists.
- Remove the left chain hoist (see 2/Fig. 32 Page: 21) with the eye bolt.

Adjusting the Lateral Guide Bearings

- Loosen the set screws (see 5/Fig. 31 Page: 21).
- Using a 5 mm Allen wrench from below (see 6/Fig. 31 Page: 21), adjust the two eccentric bearings (see 1/Fig. 31 Page: 21) through the aluminum profile so that the two bearings are just touching the outside surface of the longitudinal rail. When doing this, make sure that the eccentric bearings are not pushed up
- Retighten the set screws (see 5/Fig. 31 Page: 21).

• Carry out this adjustment for both eccentric bearings.

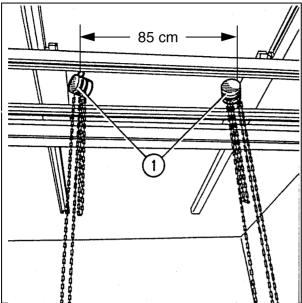
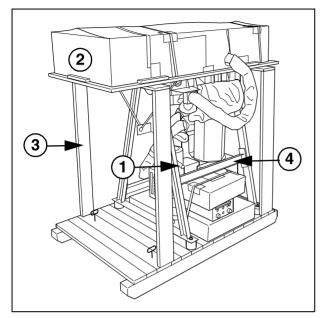


Fig. 33

- Extend the two chain hoists (see 3/Fig. 32 Page: 21) and position the transverse bridge under the two chain hoist hooks.
- Position the two chain hoist hangers (see eye bolts, 1/Fig. 33 Page: 22) 85 cm apart and centered to the transverse bridge opening and secure them in place (see Fig. 33 Page: 22).
- Hook the two chain hoists between the rails of the transverse bridge again.

Installing the Telescope



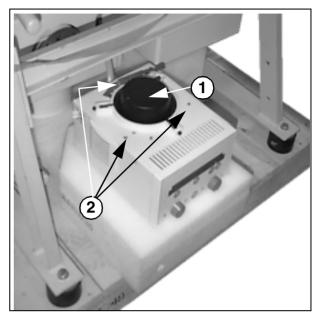


Fig. 34

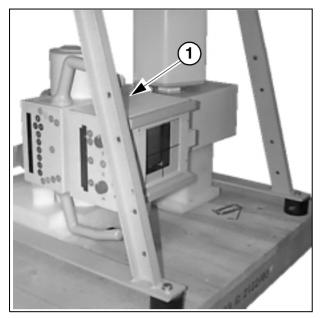
Fig. 35

- Unpack the telescope and position it under the transverse bridge so that the operating handle(see 1/Fig. 34 Page: 23) in facing in the direction of the operator's side.
- Remove the top carton (see 2/Fig. 34 Page: 23) containing the telescope cables and place the contents down on the floor. Remove the carton with the telescope cover panels from the pallet.
- Remove the wooden frame (see 3/Fig. 34 Page: 23).
- Remove the support strut (see 4/Fig. 34 Page: 23).

NOTICE

All other support struts must remain installed to assure stability!

- · Remove the packing around the collimator.
- Remove the protective cap (see 1/Fig. 35 Page: 23).
- Remove the three red transport safety devices (see 2/Fig. 35 Page: 23) from the collimator.
- Lightly lubricate the tube assembly flange with the Longtime PD2 (from the accessory pack) which is included in the shipment.



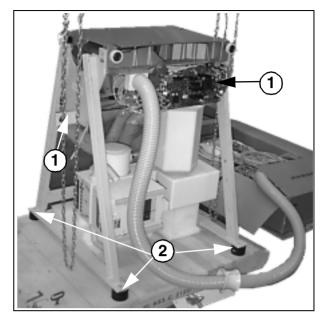


Fig. 36

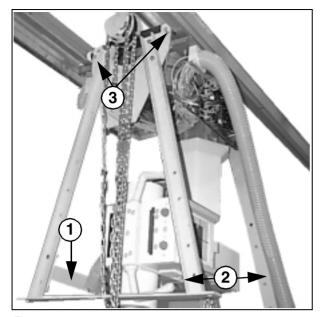
Fig. 37

Mount the collimator on the flange of the tube assembly (see Fig. 36 Page: 24); when
doing this, actuate the middle position lever (see 1/Fig. 36 Page: 24).

CAUTION

Observe the further work steps!

- ⇔ When inserting the collimator, do not place strain on the cables or kink them. Under no circumstances should other parts of the transport carriage be removed.
- Remove the four hex screws (see 2/Fig. 37 Page: 24).
- Hook the chain hoists onto the transport carriage (see 1/Fig. 37 Page: 24) and pull up the slack on the chains.
- Slightly raise the telescope and remove the pallet.



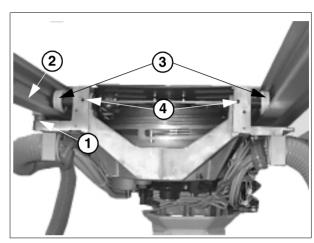


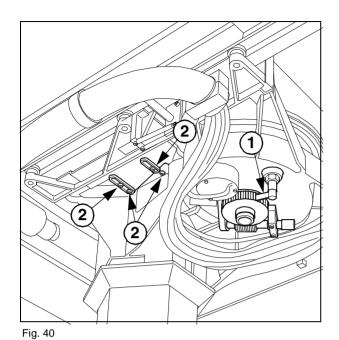
Fig. 38

Fig. 39

- Raise the telescope and insert it into the transverse bridge.
- Insert the 3 roller bearings (see 1/Fig. 39 Page: 25) into the guide rail (see 2/Fig. 39 Page: 25).
- Insert the 4 roller bearings (see 3/Fig. 39 Page: 25) into the guide rail of the transverse bridge all the way to stop



- And tighten the 4 set screws (see 4/Fig. 39 Page: 25) to a torque of 13 Nm.
- Remove the two chain hoists with the eye bolts.
- Remove the cross support (see 1/Fig. 38 Page: 25) from the transport carriage.
- Remove the two transport carriage parts (see 2/Fig. 38 Page: 25) from the telescope (see 3/Fig. 38 Page: 25) and take them away.



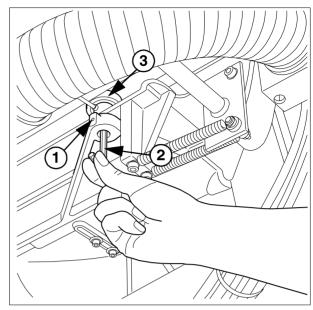


Fig. 41

- Unlatch the stop (see 1/Fig. 40 Page: 26).
- Loosen the 4 Allen screws on the brake assembly (see 2/Fig. 40 Page: 26).

Adjusting the Lateral Guide Bearing

- Loosen the set screw (see 1/Fig. 41 Page: 26) on the middle guide bearing.
- Using a 5 mm Allen wrench (see 2/Fig. 41 Page: 26) from below, adjust the eccentric bearing (see 3/Fig. 41 Page: 26) so that the contact surface of the longitudinal rail is just touched.
- Retighten the set screw.

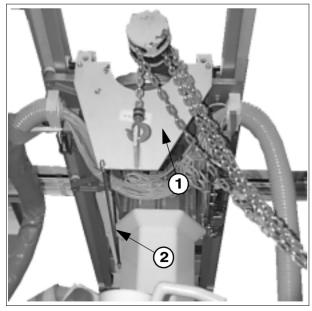


Fig. 42

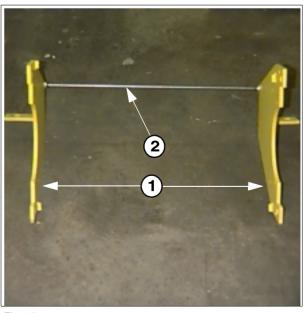


Fig. 43

∴WARNING

Risk of accident in a service situation!

□ If only the two side plates (see 1/Fig. 42 Page: 26) (see 1/Fig. 43 Page: 26) are used to lower the telescope, for safety reasons the threaded stud (see 2/Fig. 42 Page: 26)(see 2/Fig. 43 Page: 26) absolutely must be installed.

Adjusting the Collimator Mounting

Functions of the Rotating Flange

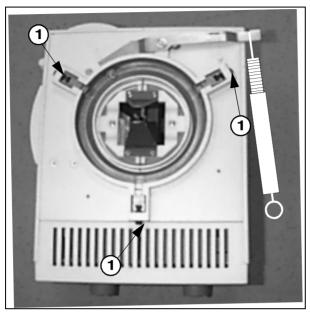


Fig. 44

- Tighten one of the 3 screws (see 1/Fig. 44 Page: 28) so that the collimator just cannot be turned any more.
- Hook a spring balance (100 N) to the lever of the rotating flange, (see Fig. 44 Page: 28).
- Loosen this screw again so that the collimator can turn when a force of 20 30 N is applied to the spring balance.
- Tighten one of the other two screws to 40 50 N as described previously and tighten the 3rd screw to 60 70 N using the spring balance.

With a Fixed Collimator Mounting

- Tighten one of the 3 screws (see 1/Fig. 44 Page: 28) so that the collimator just cannot be turned any more.
- Loosen this screw again by 1/2 turn.
- Repeat this procedure with another screw.
- Tighten the 3rd screw so that the collimator just cannot be turned any more.
- Tighten the 1st and 2nd screw the 1/2 turn back again.

NOTICE

Pertains only to the manual collimator G052G:

If only "inch" cassette formats are used by the customer, so place the "inch format" scale adhesive label over the "cm format" scale.

The original adhesive label is not removed!

Laying the Corrugated Hose

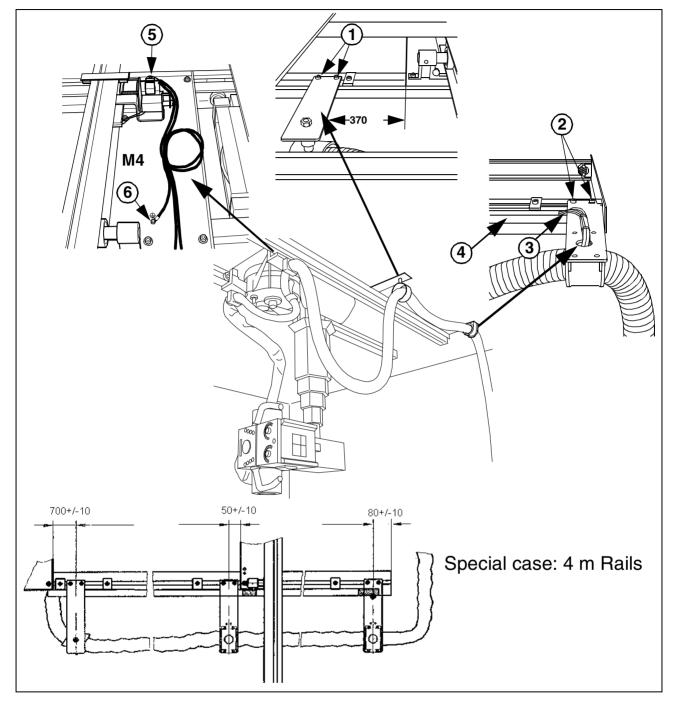


Fig. 45

- Lay out the corrugated hose so there are no kinks in it and attach it at (see 1, 2/Fig. 45 Page: 29) to the Unistrut nut using two M8 x 20 Allen screws and lock washers for each; the Unistrut nuts are located in the rail profile in the transverse bridge.
- Lay the cables (see 3/Fig. 45 Page: 29) to the M4 brake assembly in the cable channel (see 4/Fig. 45 Page: 29).
- Connect the M4.X1 cables (see 5/Fig. 45 Page: 29).
- Attach the ground wire (see 6/Fig. 45 Page: 29).

Secure the cables with cable ties.

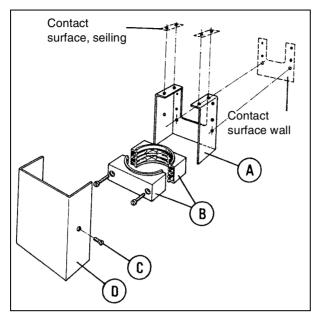


Fig. 46

- Attach the corrugated hose coming from the ceiling stand to the wall or to the ceiling per the project plans as shown in (see Fig. 46 Page: 30). To do this:
 - Attach the holder (see 1/Fig. 46 Page: 30) to the wall or ceiling;
 - Attach the corrugated hose to the holder using the corrugated hose holder (see 2/Fig. 46 Page: 30);
 - Place on the cover panel (see 3/Fig. 46 Page: 30);
 - Secure the cover panel with 2 screws (see 4/Fig. 46 Page: 30).
- Lay the cables to the generator and to the table per the system cabling plan and the cable table.

Cabling

3D-TOP with MULTIX TOP

| | Diamentor -> Generator | |
|---------------------------------------|---|--|
| Tube assembly ground wire-> Generator | | |
| | Öl pressure switch -> Generator | |
| | X86 power supply -> Generator | |
| 3D TOP manual | X58 park position / safety circuit -> Generator | |
| | X99 Tube selection -> Generator | |
| | ⊕ 6 mm ² -> Generator | |

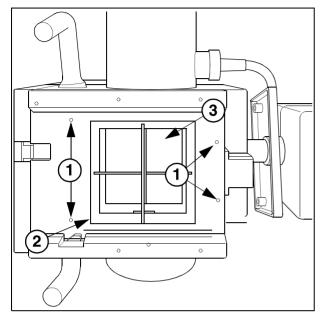
3D-TOP with ICONOS R200

| | Diamentor -> Generator | |
|---------------|---|--|
| | Tube assembly ground wire -> Generator | |
| | Oil pressure switch (D160.X62) -> Generator | |
| | M2.X86 power supply -> Generator ¹ | |
| 3D-TOP manual | D25.X58 Parkposition / safety circuit -> Generator ² | |
| | X99 Tube selection -> Generator | |
| | ⊕ 6☐ ye/gn -> Generator | |

^{1.} Central electronics in the generator cabinet

^{2.} Via the central electronics (generator) to the basuc unit

Installation Procedure



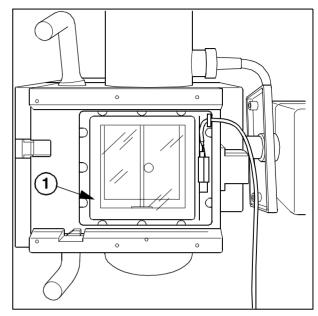
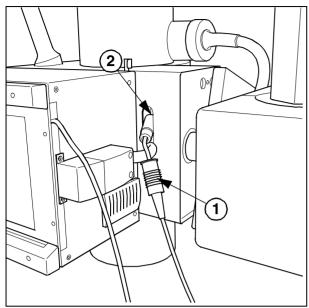
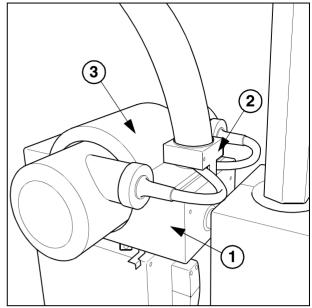


Fig. 47

Fig. 48

- Pivot the tube assembly.
- Remove the 4 countersunk Allen screws (see 1/Fig. 47 Page: 32).
- Carefully remove the cover panel (see 2/Fig. 47 Page: 32) towards the front (cover panel is attached with rivets).
- Remove the plexiglass panel (cross hairs) (see 3/Fig. 47 Page: 32).
- Insert the Diamentor chamber (see 1/Fig. 48 Page: 32) in the collimator as shown in (see Fig. 48 Page: 32) (cable outlet, top right).
- Reinsert the plexiglass panel (see 3/Fig. 47 Page: 32).
- Press the cover panel (see 2/Fig. 47 Page: 32) with the rivets through the plexiglass panel (factory adjusted).
- Install the cover panel using four M3x8 Allen screws (see 1/Fig. 47 Page: 32).





- Fig. 49 Fig. 50
 - Remove the rubber grommet (see 1/Fig. 49 Page: 33) from the cable and the pull the cable completely through the outlet (see 2/Fig. 49 Page: 33).
 - Pivot the tube assembly.
 - Remove the cover panel (see 1/Fig. 50 Page: 33) (two M4x10 paneling screws).
 - Remove the cable holder (see 2/Fig. 50 Page: 33) (two M6x16 Allen screws).
 - Remove the tube assembly housing (see 3/Fig. 50 Page: 33) (two M4x18 paneling screws). Swing out the cover panel towards the front and secure it.
 - Connect the Diamentor cable to the cable already pulled through the corrugated hose and securely stow it in the empty area.
 - Reinstall the tube assembly housing (see 3/Fig. 50 Page: 33), cable holder (see 2/Fig. 50 Page: 33) and cover panel (see 1/Fig. 50 Page: 33).

NOTICE

When turning the collimator, make sure that the collimator can be turned easily. The cables may not be stretched!

Chapter: "Installation Procedure" Section "Installing the Trans-

verse Bridge": Shortening the Transverse Bridge added.

Chapter: "Electrical Connections"

Section "Cabling": Text for ICONOS R200 updated. Section "Cabling": Text for ICONOS R200 updated.